Media and Communications Services **FACT SHEET**

(800) 451-6027 ***www.IN.gov/idem*** ***May 2002***

Land Application of biosolids and industrial waste products

What are biosolids?

- Biosolids are primarily organic materials produced during wastewater treatment which may contain water, as well as nutrients such as nitrogen, phosphorus, potassium, zinc, calcium, magnesium and iron. Biosolids may also contain bacteria and various amounts of pollutants.
- Biosolids used to be called "sludge."

What are industrial waste products?

- Generated by industrial operations, industrial waste products may be organic or inorganic and may exhibit value as a source of nutrients.
- Examples of materials are waste paper fibers, food processing wastes and pharmaceutical manufacturing by-products.

What is land application?

- Land application is the process of using biosolids and industrial waste products as soil amendments.
- Materials are usually spread on the land or injected below the land surface.

What are the advantages of land application?

- Biosolids and industrial waste products are valuable resources that can be used to improve plant growth and soil quality.
- Nutrients in these materials can replace or supplement commercial fertilizers.
- The organic matter improves soil structure and facilitates the ability of plants to acquire nutrients, retain water, and penetrate soil.
- These properties stimulate the growth of vegetation which helps reduce soil erosion and improve crop yields.

What do the EPA and IDEM think about land application?

- The U. S. Environmental Protection Agency (U.S. EPA) and the Indiana Department of Environmental Management (IDEM) encourage the beneficial use of biosolids and industrial waste products through land application.
- U.S. EPA and IDEM have published standards that must be met for these materials to be applied to the land.
- These standards require that pollutants and disease-causing organisms be reduced to acceptable levels prior to land application.
- Biosolids have been applied to land in the United States and Europe for more than 40 years, with no evidence of associated health problems.
- Almost half of the biosolids generated in the U.S. are land applied.

What types of land benefit from land application?

Biosolids and industrial waste products can be used beneficially on many types of land, including agricultural land, forests and reclaimed land.

- Approximately 77 percent of the biosolids applied to land in the United States is applied to agricultural land. This includes land used to grow food-chain crops such as corn and soybeans, land used to grow feed crops for animals, and land used for pasture. Nutrients in these materials help the crops to grow. Each dry ton of biosolids provides about $30 to $60 worth of nitrogen, phosphorus and trace nutrients.
- Biosolids and industrial waste products applied to trees or forest soils improve tree growth. The nutrients in these materials help increase the rate at which trees grow, thus shortening wood production cycles.
- These materials also are used to help reclaim barren lands such as mines, landfills, quarries, gravel pits and construction sites. The biosolids provide nutrients and condition the soil so that vegetation can grow on the reclaimed land. Vegetation reduces soil erosion and helps make the land productive again.

Where can I get more information about land application?

More information about land applying biosolids and industrial waste products is available at (800) 451-6027, (317) 232-8735 or visit IDEM's Web page at: http://www.IN.gov/idem/land/landapp/index.html .